

# Who Should Lose Weight?

Am I overweight or obese? At first, it seems like an easy question to answer. However, defining overweight and obesity proves more difficult than might be expected. At what point do the extra pounds cease to be an annoyance and become a serious threat to health? As Americans become heavier and heavier, the toll of obesity-related diseases such as diabetes and cardiovascular disease becomes greater. To appreciate the impact of excess weight on disease, one must realize that overweight and obesity are conditions that are defined by more than just total body weight as shown on a bathroom scale. Because of this, several methods to measure body mass and body fat have been developed.

**Body Mass Index:** Among health care professionals, perhaps the best known method for assessing body size is the body mass index, or BMI. BMI is a value derived from a person's height divided by his weight. Specifically, weight in kilograms is divided by height in meters, squared. Persons with a BMI of between 25 and 30 are considered to be overweight, while those with a BMI greater than 30 are classified as obese. For example, a person who is six feet tall and weighs 175 pounds has a BMI of 23.7, a value that is within normal range. If a person of the same height weighed 200 pounds, his BMI would rise to 27.1, indicating overweight. At 230 pounds, his BMI would be 31.2, indicating obesity. BMI represents a valuable and easy-to-calculate manner of determining whether a person is obese, and BMI may be used by both men and women to estimate their relative risk of developing disease.

$$\text{BMI} = \left[ \frac{\text{Weight}(kg)}{\text{Height}(m) \times \text{Height}(m)} \right]$$

**Waist Circumference:** Although BMI is a widely used and valuable tool, it is not perfect. Individuals whose weight is predominantly muscular, as well as pregnant women, may have elevated BMI values even though they are relatively healthy. Because of these and other limitations of BMI, scientists and physicians have looked for alternative ways to assess body fat in order to determine

the likelihood of disease development. Studies have shown that people whose fat is primarily localized in their abdomens—with so-called “apple” shape—are at greater risk of developing complications, in particular cardiovascular disease, than individuals of the same weight whose fat is distributed in their hips and thighs—with so-called “pear” shape. These differences in the distribution of fat have led to another method for identifying individuals at risk—using a simple tape measure to determine waist circumference. In men, a waist circumference of 40 inches or greater places individuals at risk of developing a number of obesity-related diseases; in women, a waist circumference of greater than 35 inches is considered unhealthy. Importantly, many men store their fat in their abdominal region, in contrast to many women, whose fat is more likely to be deposited in the thighs and gluteal region. Although women tend to have more body fat than men, the fact that men are more likely to store it abdominally means that the fat in men may pose a greater health risk than that in women.

**Comparative Measurements:** The waist-to-hip ratio, a comparison of waist and hip circumferences, provides important information not only about the amount of fat a person carries but the proportion of abdominal fat and, by extension, relative risk of cardiovascular complications. People with a higher ratio are at increased risk of developing diseases associated with overweight. This measurement is informative because it provides a somewhat more refined measure of overall fat distribution. In general, men with a waist-to-hip ratio of greater than 1.0 and women with a ratio greater than 0.8 are considered to have an excess accumulation of fat in their abdomens. For example, a woman with a waist measurement of 30 inches and a hip measurement of 40 inches would have a waist-to-hip ratio of 0.75. In a recent study, women with a ratio greater than 0.76 had twice the risk of developing coronary disease than those whose ratio was 0.75 or lower.

**Other Ways To Measure Body Fat:** Another way to measure body fat is to look at subcutaneous fat—the fat

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beneath the skin. This measurement is obtained using calipers, pincher-like devices that determine the thickness of the subcutaneous fat layer. The Standardized Skinfold measurement involves measuring the thickness of several defined folds of skin sampled at fixed points along the body. Based on a mathematical formula, the thickness of these folds is used to compute a person's approximate body fat.

**Conclusions:** Although methods of measuring overweight and obesity may vary, it is clear that excessive weight poses a serious risk to health. While the cut-off points in each measurement may seem arbitrary, they represent an effort to quantify an essentially imprecise variable. Each method for determining body fat has

advantages and disadvantages, and no single value should be examined without considering the overall health of the individual. However defined, overweight and obesity contribute to the development of a number of debilitating diseases, including arthritis, heart disease, and diabetes. For example, the increasing prevalence of weight problems among young people is thought to be a driving force behind the alarming rise of type 2 diabetes in children. It is entirely possible that, if untreated, such individuals could face many years fending off in mid-life the serious complications of diabetes, including blindness, amputation, and kidney failure. It is therefore of vital importance that the problems of overweight and obesity be addressed aggressively by researchers, physicians, and patients.